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ABSTRACT

Some common questions that state legislators have about how distance learning can work in their states are explored. Distance learning, once considered strictly a rural education strategy, is now recognized to have the potential to provide solutions to some of the problems states face in delivering quality education to all students. A distance learning system will involve multiple technologies, such as interactive audio and video communication, videotapes, various computer technologies, satellite systems, and fiber optics to replace standard cables for communications. In the classroom, distance learning appears effective, although many unanswered research questions remain. Studies have confirmed that distance education has been well-received by teachers and students. Given current fiscal restraints, a legislature cannot afford to fund an entire distance learning system, and should not seek to control a developing system. Legislatures should be involved in developing a long-term and statewide distance learning strategy. Legislative involvement will be essential in achieving a balance between the potential for improving education and the potential problems in distance learning. (Contains 7 references.) (SLD)

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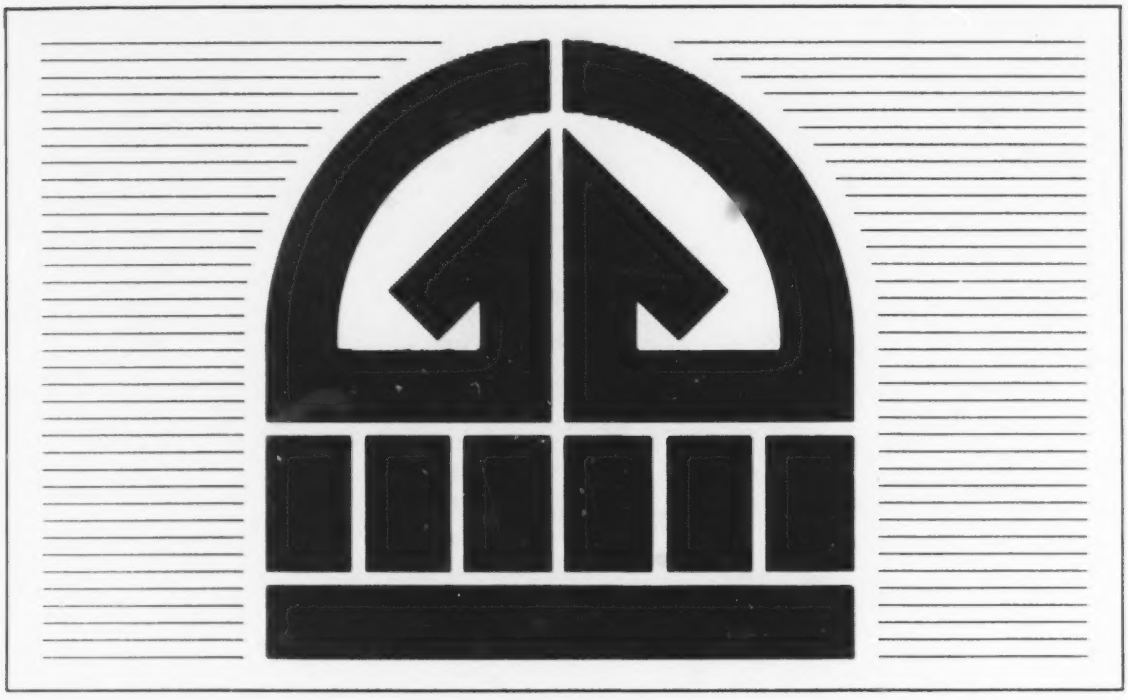

DISTANCE LEARNING: NEW TECHNOLOGY AND NEW POTENTIAL

by

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INTRODUCTION

Most state legislators are at least somewhat familiar with the concept of distance learning. As we increasingly become a telecommunications society, legislators will have many occasions to encounter the technology that is involved in distance learning, such as teleconferencing, audiographics, interactive television and satellite communications. While distance learning is not a new concept--the early correspondence courses of the 1950s were a form of distance learning--the technology has so remarkably changed that legislatures can now consider it as a viable and affordable policy option for the enhancement of education in their states. This report answers some common questions state legislators have about how distance learning can work in their states and presents findings from a recently conducted study of distance learning experiences.

Distance learning was once considered strictly a rural education strategy. In fact, even now its largest contribution is bringing courses to rural areas that their schools would not otherwise be able to offer. Now, that modern school reform efforts include tinkering with curriculum at the state and national levels, distance learning will be useful for both small and large schools in urban and rural areas. Distance learning has the potential to provide solutions to some of the problems states face in attempting to deliver a quality education to all students.

Distance learning offers the opportunity to reach beyond the local school by linking teachers and courses to students via technology. It can enhance education by providing such new and different courses as Japanese or Russian. It can bring local, national or international experts to any classroom. It can provide university-level teachers and courses for high schools and community colleges. In addition, distance learning technology and systems can serve broader community development purposes by linking together communities and schools. In Kansas, for example, the technology is located in the schools but also is used by the entire community for adult programs, employment training and social service support.

DISTANCE LEARNING TECHNOLOGY

The purpose of this report is not to make state legislators experts in complicated distance learning technology. Rather, it seeks to help legislators understand how a distance learning program can work in the schools. Still, a basic understanding of the technology is important in considering the most appropriate choices for each school setting.

A single distance learning program consists of audio and/or video communication which is one-way or interactive. Different technologies are available at widely varying costs for each form of communication. A distance learning system will involve multiple technologies.

The most basic technology relies strictly on audio communication, either through telephone or radio. Audio provides only limited use because communication is generally limited to one-way. Radio is rarely used in distance learning programs. A speaker phone allows some two-way communication, but the participants cannot see each other. Audio-only communication is not ideal for learning, but it is an inexpensive way to bring new information into a school.

Video provides pictures and images but may not always allow two-way communication. Videotape provides an inexpensive way to deliver some courses. Students may watch the program at their own pace and at a convenient time. Two-way video allows for the necessary communication that makes distance learning a real alternative to the traditional classroom.

Computers also permit interaction with networking systems between data bases or bulletin board services. Students can work out their lessons on the computer which will respond differently depending on whether the answers are wrong or right. Students can work at their own pace and

repeat lessons if necessary. Audiographics link audio capacity with computers and allow talking back and forth.

Instruction by satellite and interactive television are clearly the future of distance learning. Both provide immediate interaction between students at one site and an instructor at another site. To use satellite technology a school needs a satellite (downlink) to receive a signal broadcast via an Earth station (uplink).

The most exciting technology for the future of distance learning is fiber optics. Presently fiber optics are replacing standard telephone and non-broadcast television cables. Fiver optics consists of thin flexible fibers which can transmit large amounts of information at an extremely fast speed. For example, a single fiber strand can carry 16,000 telephone conversations at once, compared to conventional copper wires that can carry approximately 24. As fiber optic and satellites systems become more numerous, distance learning will become more efficient, effective and affordable. New communications technology also will determine how distance learning will work in the schools and the corresponding policies that will be needed.

DISTANCE LEARNING IN THE CLASSROOM

Beyond the issue of the appropriate technology and the cost of that technology, distance learning poses many questions--yet unanswered--about its effectiveness in the classroom. Can courses taught at a distance attain the same quality as those in the traditional classroom setting? Do students learn more or less in a distance learning course than in the classroom? Do students like distance learning courses? Are the courses more appropriate for certain levels of students and certain courses?

A 1990 Mid-Continent Regional Educational Laboratory (MCREL) study in North Dakota provides a case study of distance learning. Twenty-eight public schools in the state participated in this study of students, teachers and monitors involved in 23 distant learning courses. Courses in the study were taught using several different technologies--analog and digital interactive television, audiographic telelearning, and instruction by satellite.* The courses taught included art, Japanese, Russian, accounting, anatomy/physiology, child development, probability/statistics and micro economics.

Unlike a correspondence course, to be successful a distance learning program cannot function entirely on its own. There must be appropriate technology, an instructor, a classroom setting and a monitor at the local site. There must be some coordination with the school in selecting courses to be offered, determining which students may enroll and scheduling the courses into the regular daily class schedules.

Given that, distance learning courses can still fit quite easily into present school environments. A special classroom is not necessarily required. A typical course might involve only a few students or as many as 30 to 40. A classroom coordinator, who is probably not trained in the subject being taught, supervises the students, delivers hand-out material, handles equipment problems, monitors student activity and may or may not participate in grading homework. The class meets during regular school hours, although it may not perfectly correspond to the regular bell schedule. An instructor from a remote site is able to interact with the students and hear comments and questions.

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* The technology differences in conducting distance learning courses was the focus of this study. Those interested in a more detailed discussion of cross-technological experiences should obtain this report.

Students

In the North Dakota study students were extremely positive about their distance learning courses. Seventy-nine percent of the students said they would enroll in another distance learning course if given the opportunity and 74 percent said they had learned "a great deal" from the course. Students expressed positive comments about taking responsibility for their own learning, working on their own and motivating themselves.

Instructors

The number of people who can serve as instructors for distance learning courses is endless. They can be current school teachers, university professors, graduate students, other educators or national experts, limited only by state and local teacher requirements. Since the technological experience of many teachers is limited to tape recorders, VCRs and computers, teachers must have some training in the technology they will be using. Training can be provided by the university, local phone accompany, the state education agency or consultants. In addition to operating the equipment, the instructor should have some training in teaching a distance learning course. Some of the challenges for teachers include learning how to maintain discipline in the remote classroom, assessing how well students are following the lecture material, gauging the level of interest in the classroom, being available for consultation with students, and assigning, grading and returning coursework.

According to the study, the time investment for the first year is considerable. Teachers in the study typically devoted six or more hours per week during the school day and one to five hours after school hours to one distance learning class. This is addition to the initial preparation time needed in putting the course together.

Generally, the teachers in the North Dakota study felt that there was little difference in their role as distance learning teachers and as traditional classroom teachers. In fact, two thirds of them felt they could teach better by using new educational technology. Instructors generally felt the pace of the course did not differ from that of a traditional course. However, all teachers in the study said discipline was more of a problem in a distance learning class. They generally agreed that because there was less student-teacher interaction it was harder for them to assess whether the students were routinely understanding the subject matter. In administering homework the teachers used mail, fax, video camera, courier and computer.

The Classroom Monitor/Supervisor

The classroom coordinator or supervisor is a crucial part of the distance learning course. The coordinator is the course troubleshooter who makes sure the equipment is working, maintains discipline in the classroom, in some instances shares the responsibility for grading homework, brings materials to class, participates in discussions and conducts reviews. In the North Dakota study, most of the people acting in this capacity had other positions within the school district (teachers, staff, administrators). The coordinators were not specifically hired as distance learning coordinators. Monitors received an average one-half day of training. The training involved satellite, video and computer operation, and training in the role of the classroom supervisor.

In general the coordinators who participated in the North Dakota study were enthusiastic about distance learning. To a larger extent than the course instructors, coordinators reported some frustrations by students. For example, approximately 30 percent of the classroom monitors felt that students learned less in a DISTANCE LEARNING course than in a traditional course, that students did not want to put forth the necessary effort to succeed in the course, or that students were frustrated at not having a subject knowledgeable teacher in the classroom, however, none of the teachers who was knowledgeable about the subject agreed that any of these problems existed. The monitors also reported occasional equipment problems, as would be expected with

any technology. Coordinators believed that a classroom supervisor is a necessity in a distance learning course.

School Administrators

School administrators who participated in the research study were generally quite positive about the distance learning experience. When asked whether they wanted to use the technology in the future, most agreed that distance learning had a long-term role at the school. Eighty-seven percent of the administrators believe distance learning is a workable solution to curriculum expansion and limited teacher availability. Administrators see distance learning as serving long-term needs for curriculum expansion and typically believe a distance learning course is better than no course at all. Administrators wanted to see state education agencies more involved in information, training and funding.

DISTANCE LEARNING EFFECTIVENESS

There are still many unanswered questions about the effectiveness of distance learning courses. It is not clear whether students in distance learning courses learn more or less than students taking the course in a traditional classroom setting. Nor are there answers yet to many other questions policy makers want to know about distance learning: Do certain students benefit more than others? Are certain courses more adaptable to distance learning? How do you motivate students to learn when the teacher is not present in the classroom? How do you ensure that instructors will be effective? These same questions have yet to be resolved in the traditional classroom setting either.

The MCREL study makes several recommendations for state policymakers. First, the state departments of education need to be involved to a greater extent in informing local schools about distance learning possibilities, in training teachers and classroom monitors, in rethinking requirements and certification procedures for teachers and coordinators, and in monitoring the success of distance learning courses. Schools will turn to the state agency for information and expertise. The state agency also needs to monitor the types of courses being offered, the students enrolled in the courses and how well the students are doing.

Second, the selection of a specific distance learning technology should be made at the individual school level and not at the state level. Each technology will vary with respect to its applicability and ease of implementation. Each school needs to select a technology based on the courses to be offered, the number and type of students to be served and the financial resources available. If the school faculty is involved in these decisions they will be more receptive to finding a role for distance learning. States can also consider clustering several schools around a particular distance learning technology.

The role of the classroom coordinator needs special attention. The requirements and training for classroom monitors need to be clearly defined. Training and technical support need to be made available. States should encourage full-time classroom coordinators.

Finally, not all distance learning technologies are created equal. Different technologies will require different regulations and pose different policy problems.

THE ROLE OF THE LEGISLATURE

Given current state fiscal restraints, a state legislature cannot afford to fund an entire distance learning system. The legislature should also not seek to control it. In fact, the on-going legislative role may be limited, although extremely important to the success of a distance learning program. Legislatures should first of all be involved in developing a long-term and state-wide distance learning strategy.

A statewide, multi-purpose network may not be the best choice for every state, but because of the cost of technology and the potential statewide benefits it is an option worthy of serious thought. In such a network, distance learning is only one piece of a larger technological maze. In making this decision, legislators should be involved with local education and economic development agencies as well as the communications industry in determining the feasibility of a statewide network. A second option is bringing distance learning only to certain communities or school districts.

Legislators should be active participants in the development of a statewide partnership for distance learning. A distance learning partnership relies on the funding and involvement of a variety of sources, including state regulatory agencies, the state education agency, universities, public broadcasting corporations, certification and accreditation agencies, local education agencies, the governor's office, the telecommunications industry, and other statewide associations and unions. In Iowa, the legislature has taken the initiative in developing a collaborative for the State Educational Telecommunications Network.

Legislatures will be called upon to provide some funding for distance learning programs. This financial support can be for research and development or the purchase of technology. The North Carolina legislature has considered legislation to provide satellite receiving dishes to each of the state school districts. In Texas, the basic school funding formula allows for distance learning by building in a factor for how spread out students are.

Perhaps the most important role lawmakers can play is creating an environment that allows distance learning to reach its maximum potential for educating students. This can be accomplished by passing legislation that fosters rather than hampers distance learning efforts. Legislatures may need to reconsider policies written during the pre-telecommunications age regarding such issues as the regulation of communications, school curriculum and teacher certification.

Effective distance learning programs require easing policies for teacher certification, particularly across state lines; training for instructors, monitors and administrators in using distance learning technology; and other kinds of support programs for instructors and other school personnel.

While distance learning holds much potential for improving educational access and quality, that potential must be balanced with the new issues it creates. Teacher organizations, concerned that technology will replace the classroom teacher may be resistant to distance learning efforts. States need to consider standards for distance learning instructors and classroom monitors, and for ensuring that distance learning courses deliver a high quality product. States should consider on-going mechanisms to assess how well students are learning in distance learning courses compared to the traditional classroom. Legislative involvement in the planning, development and assessment of a statewide distance learning program is vital for achieving that balance.

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